

CLAIMS

1. An air ejection assembly for unsteady an exhaust plume discharged from an
5 exhaust end of a turbine engine during operation, the air ejection assembly comprising:
an input port configured to receive air from the turbine engine; and
an output port in fluid communication with the input port;
wherein the output port is located adjacent to and outside of the exhaust end and
configured to emit air to pierce a core of the exhaust plume.
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2. The air ejection assembly according to claim 1, further comprising a fluid
control valve in fluid communication between the input port and the output port for
regulating the air emitted by the output port.
- 15 3. The air ejection assembly according to claim 1 or 2, wherein the input port is
configured to receive compressed air from the turbine engine.
4. The air ejection assembly according to claim 3, wherein the input port is further
configured to receive up to 4% of the compressed air within the turbine engine.
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5. The air ejection assembly according to any one of the preceding claims, wherein
the output port is located outside of the exhaust plume.
6. The air ejection assembly according to any one of the preceding claims, wherein
25 the output port is configured to emit air in a continuous manner.
7. The air ejection assembly according to any one of the preceding claims, wherein
the output port is configured to emit air at a converging angle of 30° to 90° relative to
the longitudinal axis of the exhaust plume.
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8. The air ejection assembly according to any one of the preceding claims, wherein
the output port is a convergent nozzle.

9. The air ejection assembly according to any one of claim 1 to 7, wherein the output port is a convergent-divergent nozzle.
10. The air ejection assembly according to claim 2, wherein the fluid control valve is
5 a pneumatic on/off valve or an electric on/off valve.
11. The air ejection assembly according to claim 2, wherein the fluid control valve is a pneumatic modulation valve or an electric modulation valve.
- 10 12. A turbine engine comprising:
a compressor for compressing air drawn into the engine;
a combustor to combust a mixture of the air compressed by the compressor and
fuel drawn into the combustor;
a turbine driven by the combusted air/fuel mixture; and
15 an exhaust end for guiding an exhaust plume out of the turbine engine;
an air ejection assembly as according to any one of the preceding claims.
13. The turbine engine according to claim 12, further comprising an afterburner disposed behind the turbine.
- 20 14. The turbine engine according to claim 12 or 13, wherein the exhaust end is an adjustable nozzle.
15. The turbine engine according to any one of claims 12 to 15, wherein the input
25 port of the air ejection assembly is configured for receiving air from the compressor.
16. A method of unsteading an exhaust plume discharged from a turbine engine comprising the steps of:
receiving air from of the turbine engine; and
30 directing the air from a location adjacent to and outside of the exhaust end of the engine to pierce a core of the exhaust plume.

17. The method according to claim 16, wherein the air is ejected in a continuous manner.

18. The method according to claim 16 or 17, wherein the air received is compressed.

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19. An air ejection assembly for use with a turbine engine, constructed and arranged substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.

10 20. A turbine engine, constructed and arranged substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.

21. A method of unsteadyng an exhaust plume substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.